



I-Tera[®] MT Very Low-loss Laminate Material

I-Tera[®] MT laminate materials exhibit exceptional electrical properties which are very stable over a broad frequency and temperature range. I-Tera MT is suitable for many of today's high speed digital and RF/microwave printed circuit designs. I-Tera MT features a dielectric constant (Dk) that is stable between -55°C and +125°C up to 20 GHz. In addition, I-Tera MT offers a lower dissipation factor (Df) of 0.0031 making it a cost effective alternative to PTFE and other commercial microwave and high-speed digital laminate materials.

I-Tera MT laminate materials are currently being offered in both laminate and prepreg form in typical thicknesses and standard panel sizes. This provides a complete materials solution package for high-speed digital multilayer, hybrid, RF/microwave, multilayer and double-sided printed circuit designs. I-Tera MT does not require any special through hole treatments commonly needed when processing PTFE-based laminate materials.

www.isola-group.com/products/i-tera-mt/

ORDERING INFORMATION:

Contact your local sales representative or visit www.isola-group.com for further information.

Isola Group
3100 West Ray Road
Suite 301
Chandler, AZ 85226
Phone: 480-893-6527
Fax: 480-893-1409
info@isola-group.com

Isola Asia Pacific (Hong Kong) Ltd.
Unit 3512 - 3522, 35/F
No. 1 Hung To Road, Kwun Tong,
Kowloon, Hong Kong
Phone: 852-2418-1318
Fax: 852-2418-1533
info.hkg@isola-group.com

Isola GmbH
Isola Strasse 2
D-52348 Düren, Germany
Phone: 49-2421-8080
Fax: 49-2421-808164
info-dur@isola-group.com

High Performance

I-Tera[®] MT Data Sheet

Tg 200, Td 360
Dk 3.45, Df 0.0031

Features

- High Thermal Performance
 - ▶ Tg: 200°C (DSC)
 - ▶ Td: 360°C (TGA @ 5% wt loss)
 - ▶ Low CTE in the Z-axis – 2.8% (50-260°C)
- T260: >60 minutes
- T288: >60 minutes
- RoHS Compliant
- Electrical Properties
 - ▶ Dk: 3.45
 - ▶ Df: 0.0031
 - ▶ Typical electrical properties over a broad frequency and temperature range per IPC-TM-650-2.5.5.5
- Core Material Standard Availability
 - ▶ Thickness: 0.0020"-0.018", 0.020" and 0.030"
 - ▶ Available in full size sheet or panel form
- Prepreg Standard Availability
 - ▶ Roll or panel form
 - ▶ Tooling of prepreg panels available
- Copper Foil Type Availability
 - ▶ Standard HTE Grade 3
 - ▶ RTF (Reverse Treat Foil)
 - ▶ VLP-2 (2 micron)
- Copper Weights
 - ▶ ½, 1 and 2 oz (18, 35 and 70 µm) available
 - ▶ Heavier copper available upon request
 - ▶ Thinner copper foil available upon request
- Glass Fabric Availability
 - ▶ Square weave glass fabric available
 - ▶ Spread glass fabric available
- Industry Approvals
 - ▶ UL 94 V-0
 - ▶ UL Qualified - 130 MOT
 - ▶ Non-ANSI
 - ▶ IPC-4103 /17

I-Tera[®] MT Specifications

Property		Typical Values			
		Typical Value	Specification	Units	Test Method
				Metric (English)	IPC-TM-650 (or as noted)
Glass Transition Temperature (Tg) by DSC		200	170-200	°C	2.4.24
Decomposition Temperature (Td) by TGA @ 5% weight loss		360	–	°C	ASTM D3850
T260		>60	–	Minutes	–
T288		>60	–	Minutes	–
CTE, X-, Y-axes	A. Pre-Tg	12	AABUS	ppm/°C	2.4.41
	B. Post-Tg	13	–		
Z-axis Expansion (50-260°C)		2.8	–	%	2.4.41
Thermal Conductivity (-100-250°C)		0.61	–	W/mK	ASTM 1952
Thermal Stress 10 sec @ 288°C (550.4°F)	A. Unetched	Pass	Pass Visual	Rating	2.4.13.1
	B. Etched				
Dk, Permittivity	A. @ 2 GHz	3.45	±0.05	–	2.5.5.5
	B. @ 5 GHz	3.45	±0.05		
	C. @ 10 GHz	3.45	±0.05		
Df, Loss Tangent	A. @ 2 GHz	0.0031	±0.0005	–	Bereskin Stripline
	B. @ 5 GHz	0.0031	±0.0005		
	C. @ 10 GHz	0.0031	±0.0005		
Volume Resistivity	96/35/90	1.33x10 ⁷	1.0x10 ⁶	MΩ-cm	2.5.17.1
Surface Resistivity	96/35/90	1.33x10 ⁵	1.0x10 ⁴	MΩ	2.5.17.1
Dielectric Breakdown		45.4	–	kV	2.5.6
Arc Resistance		139	60	Seconds	2.5.1
Electric Strength		45 (1133)	30 (750)	kV/mm (V/mil)	2.5.6.2
Comparative Tracking Index (CTI)		2	–	Class (Volts)	UL-746A ASTM D3638
Peel Strength	1 oz. (38µm) EDC foil	1.0 (5.7)	0.53 (3.0)	N/mm (lb/inch)	2.4.8.3
Tensile Strength	A. Lengthwise direction	39	–	ksi	ASTM D3039-95a
	B. Crosswise direction	35			
Tensile Modulus/Young's Modulus	A. Lengthwise direction	3,060	–	ksi	ASTM D3039-95a
	B. Crosswise direction	2,784			
Flexural Strength	A. Lengthwise direction	71	–	ksi	ASTM D790-10
	B. Crosswise direction	58			
Flexural Modulus/Taylor's Modulus	A. Lengthwise direction	2,857	–	ksi	ASTM D790-10
	B. Crosswise direction	2,743			
Poisson's Ratio	A. Lengthwise direction	0.234	–	–	ASTM D3039-95a
	B. Crosswise direction	0.222			
Moisture Absorption		0.1	–	%	2.6.2.1
Flammability		V-0	–	Rating	UL 94
Max Operating Temperature		130	UL Cert	°C	–

* Dk & Df are dependent on resin content. NOTE: Dk/Df is at one resin percentage. Please refer to the Isola website for a complete list of Dk/Df values. The data, while believed to be accurate & based on analytical methods considered to be reliable, is for information purposes only. Any sales of these products will be governed by the terms & conditions of the agreement under which they are sold.

www.isola-group.com/products/i-tera-mt/

The Isola name and I-Tera are registered trademarks of Isola Corp. USA in the USA and other countries. The Isola logo is a trademark of Isola USA Corp. in the U.S.A. and other countries. All other trademarks mentioned herein are property of their respective companies. Copyright © 2015 Isola Group, S.à.r.l. All rights reserved.
06/15 DSI-TeraE

